

Research Methods & Literature Evaluation

PHRD 4052

I. Contact Information

Course Coordinators:

Bryan J. Donald, PharmD

318-342-1903

donald@ulm.edu

Bienville 125

Office Hours: MTWR, 0900-1130

Preferred Communication: Email*

II. Course Pre-requisites/Co-requisites

Pre-requisites - PHRD 4033 (Drug Information Retrieval)

Co-requisites - None

III. Course Description

(3 SCH) Introduction and application of basic concepts in research methodology and design needed for efficient evaluation, utilization, and clinical application of medication information available in medical literature. This course is activity-based and covers the research process, common methods used in practice-based research, and principles of scientific literature evaluation. Student activities and projects reinforce these concepts.

IV. Curricular Objectives and Outcomes

CAPE

Domain 1 – Foundational Knowledge

1.1. Learner (Learner) - Develop, integrate, and apply knowledge from the foundational sciences (i.e., *pharmaceutical, social/behavioral/administrative*, and *clinical sciences*) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and *patient-centered care*.

Domain 2 – Essentials for Practice and Care

2.1. Patient-centered care (Caregiver) - Provide *patient-centered care* as the medication expert (collect and interpret evidence, prioritize, formulate assessments and recommendations, implement, monitor and adjust plans, and document activities).

2.4. Population-based care (Provider) - Describe how *population-based care* influences *patient-centered care* and influences the development of practice guidelines and evidence-based best practices.

Domain 3 - Approach to Practice and Care

3.1. Problem Solving (Problem Solver) – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

3.2. Educator (Educator) – Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding.

3.6. Communication (Communicator) – Effectively communicate verbally and nonverbally when interacting with an individual, group, or organization.

Domain 4 – Personal and Professional Development

4.1. Self-awareness (Self-aware) – Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth.

4.2. Leadership (Leader) - Demonstrate responsibility for creating and achieving shared goals, regardless of position.

4.4. Professionalism (Professional) - Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society.

ACPE APPENDIX 1

2. Biostatistics - Appropriate use of commonly employed statistical tests, management of data sets, and the evaluation of the validity of conclusions generated based on the application of those tests to the data sets.

22. Pharmacoepidemiology - Cause-and-effect patterns of health and disease in large populations that advance safe and effective drug use and positive care outcomes within those populations.

27. Research Design - Evaluation of research methods and protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions, and to appropriately evaluate the validity and reliability of the conclusions of published research studies.

V. Course Specific Objectives and Outcomes

At the conclusion of this course, students should be able to:

- A. Develop a system for reading and evaluating primary medical literature.
- B. Communicate key points from medical literature to health care professionals.
- C. When reading primary medical literature, discern the answers to three critical questions:
 - 1. Is this a true finding?
 - 2. Can I apply this finding to my patients?
 - 3. Will this finding change my practice?
- D. Identify standard study designs.
- E. Defend or criticize the ethics of deviations from standard study designs.
- F. Determine patient-, population-, and institution-specific factors influencing the application of findings from primary medical literature.
- G. Select an appropriate statistical test for a given comparison.
- H. Discern between statistical and clinical significance:
 - 1. Discuss the utility of results that do and do not meet statistical significance; and
 - 2. Defend or criticize changes to health care practice based on clinical significance.
- I. Work in a team to evaluate medical literature and apply findings from primary medical literature to patients, populations, and institutions.

VI. Course Topics

Topics include but may not be limited to research methods, evaluation of medical literature, biostatistics, application of primary literature to pharmacotherapy and therapeutic decision-making, and other components of the research process. A detailed schedule of topics is included in the course schedule below.

VII. Instructional Methods and Activities

Students will participate in class mainly through active group discussion, problem-based learning, team-based learning, and both individual and group presentations. Slideshows and lectures will be used only minimally, and students should not rely on the content of slideshows or course notes as sufficient for success in this course.

Most learning in this course will occur through guided exploration and guided self-discovery of concepts. Students should expect pre-class work, usually in the form of reading primary medical literature articles (or excerpts from articles) to prepare them for active participation in class. Students are expected to come to class having completed the pre-class assignment and prepared to participate in the day's activities. *Assigned pre-class work **will** be assessed as part of students' grades.*

For midterm and final exams, students should expect to pre-read an article from primary medical literature, and exam questions will be based on that article. Students will be given a copy of the article to use during the exam.

Students must have basic computer proficiency to be successful in this class.

VII. Evaluation and Grade Assignment

Grade Category	Point Value
iRAT/tRAT Quizzes	100
Midterm Exam	100
Final Exam	100
Journal Club Presentation	50
Faculty & Peer Evaluations of participation & professionalism	25
Total points for course	375

Letter grades are determined as follows:

90% - 100% = A

80% - 89% = B

70% - 79% = C

60% - 69% = D

0% - 59% = F

Grade percentages will be rounded to the nearest whole number.

This course may include additional group and/or individual graded assignments or quizzes which may be announced or unannounced. The total points for the course will be adjusted as needed.

This course may include additional graded assignments conducted in the Integrated Laboratory Sequence (ILS) course corresponding to this course.

Exam dates are scheduled in the course syllabus and will only be changed in the event of a University closure or other emergency.

Late submission of any assignment will result in a penalty as specified in the activity description. If there is no specified penalty in the activity description, late submission will result in zero (0) points for the assignment. Late submission of any quiz will result in zero (0) points for the quiz.

iRAT/tRAT quiz scores will consist of both individual and team quiz scores. Students who do not turn in an iRAT quiz or score a zero for an iRAT quiz will receive a zero for the corresponding tRAT, also.

Midterm grades will be posted online for students to view via Banner. Midterm grades indicate a student's status at mid-semester only and do not indicate the final performance outcome of a student.

Exam questions may be multiple-choice, fill-in-the-blank, short answer, case or case-based discussion, essay, or any other format deemed appropriate by course instructors. Exams may cover material not covered during class (outside readings and assignments, skills from prior courses). Exams will be individual work only, except for the team portion of the final exam.

Exams will be issued using ExamSoft unless otherwise announced by course instructors. All students are required to download exams prior to the date of the scheduled exam. Under no circumstances may a student open an ExamSoft exam except during the scheduled exam time and at the scheduled exam location. Scratch paper and any required materials will be issued on the day of the exam and all students are required to sign and return scratch paper and other materials to the exam proctor prior to leaving the room. Students must verify successful upload of their exam or final exam closeout with the exam proctor prior to leaving the room. Students may not have phones, watches, or any exam materials not explicitly permitted by the course instructor on their person while taking exams.

Barring unexpected events, exam results should be available by the day following the exam date. All other evaluations and scores will be given to students within 1 week of the assessment or assignment due date. Exams may be returned to the student at the discretion of the course coordinator. The course coordinator is available to review exams with students during office hours or by appointment. Students who wish to challenge questions must do so within 1 week of scores being returned and should do so in writing. The result of challenges will be decided at the sole discretion of the course coordinators.

Student Success Policy: <http://www.ulm.edu/pharmacy/currents.html>Links to an external site.

Remediation Policy: <http://www.ulm.edu/pharmacy/currents.html>Links to an external site.

IX. Class Policies and Procedures

At a minimum, all policies stated in the current ULM *Student Policy Manual & Organizational Handbook* should be followed (see <http://www.ulm.edu/studentpolicy/>Links to an external site.). Additional class policies include:

A. Textbooks & Materials:

No textbook is required for this course. Students must use a variety of literature sources including but not limited to: primary literature found through ULM College of Pharmacy Library Resources and clinical guidelines found from their originating organizations.

Required texts not available to the student through the ULM library will be posted to Canvas. Course instructors may but are not required to post other required readings to Moodle.

B. Attendance Policy:

This course relies heavily upon active participation in class, for which prompt and consistent attendance is imperative. Students should be in class on time and prepared to complete quizzes and participate in active discussion. If, for whatever reason, a student anticipates missing or being late to class, that student should inform the course instructor as soon as possible *before* being absent from or late to class. Tardiness and absence may affect a student's professionalism grade.

The following reflects the ULM College of Pharmacy Excused Absence Policy. Note that the course coordinator is the only person who can grant an excused absence.

Additionally, note that the course coordinator defines "possible" different from "convenient." If a student should have reasonably foreseen an absence prior to missing class or any activity but did not notify the course coordinator prior to missing that class or activity, the course coordinator is not obligated to excuse the absence. Examples include: University-sponsored travel is always approved prior to missing class, or a student who feels too ill to attend class should notify the course coordinator when the decision is made to miss class, not at the time of a health care encounter for the illness, especially if the health care encounter will occur after the missed class or activity.

Professors shall accept an official University excuse. With the following exceptions, professors are to determine whether absences are excused or unexcused: 1) Absences arising from authorized trips away from the University or from special duties at the University shall be excused. 2) Absences arising from a student's confinement in a hospital or other in-patient facility or doctor's excused absences shall be excused. Students are responsible for verifying providing documentation to the faculty, which will be verified. 3) Absences arising from a death in the immediate family shall be excused. The immediate family is defined as spouse, child, step-child, mother, father, sister, brother, grandmother, grandfather, step-mother, step-father, step-brother, step-sister, aunt, uncle, mother-in-law or father-in-law.

1. **Absence from Class:** A student is expected to notify his/her Course Coordinator(s) on the day the absence occurs. Notification, if possible, should occur prior to the absence. A voice message or email is an acceptable method of notification. The Course Coordinator(s) will confirm notification received. If the Course Coordinator(s) does not confirm receipt of notification, the student should notify them again.
2. Upon return to classes, the student should bring a valid written excuse to the OSPA.

3. OSPA will verify the validity of the excuse and will sign and date the excuse.
 4. The student should retrieve the validated excuse on the SAME day it is dropped off in the OSPA and, outside of class, approach the Course Coordinator(s) with their documentation unless otherwise stated in the course syllabus. This should also occur on the SAME day the excuse is validated.
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1. **Absence from an Exam:** A student missing an exam MUST contact the Course Coordinator(s) via email or phone prior to the test. In case of emergency, a student should contact OSPA. OSPA will notify Faculty. The student must contact the Course Coordinator(s) or OSPA within 48 hours of the emergency.

OSPA office hours –

Monday through Thursday 7:30 am to 5:00 pm

Friday 7:30 am to 11:30 am

OSPA office phone –

318-342-3800

Mrs. Mary Rhea (Assistant Dean of Student Affairs and Development)

Office phone – 318-342-3803, Email – mrhea@ulm.edu

Dr. Laurel Sampognaro (Director of Student Success)

Office phone – 318-342-1721, Email – sampognaro@ulm.edu

1. Upon return to classes, the student should bring a valid written excuse to the OSPA.
 2. OSPA will verify the validity of the excuse and will sign and date the excuse.
 3. The student should retrieve the validated excuse on the SAME day it is dropped off in the OSPA and, outside of class, approach the Course Coordinator(s) with their documentation unless otherwise stated in the course syllabus. This should also occur on the SAME day the excuse is validated.
 4. Exam make-up will be at the discretion of the Course Coordinator(s).
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1. **Mental and/or Physical Health Leave of Absence:** A student who feels he/she needs a Leave of Absence should make an appointment with the Assistant Dean of Student Affairs and Development or the Director of Student Success as soon as the student recognizes this need. The leave of absence will not be

considered by the Course Coordinator(s) for excuse until after the Assistant Dean of Student Affairs and Development and/or the Director of Student Success has been contacted. Do not directly contact the course coordinator(s) until after speaking with the Assistant Dean of Student Affairs and Development or the Director of Student Success.

A Leave of Absence is considered to be a period of time when a student does not attend classes but intends to return at some point. Individuals typically take a Leave of Absence when depression, anxiety, trauma, substance use, or other disorder is interfering with his/her daily life to the point that he/she is unable to function and complete required tasks. A Leave of Absence can also be taken for medical reasons, such as a serious medical condition or to care for a family member with a health condition. Once granted, a student may not attend classes or any College sponsored event during a Leave of Absence.

Any leave of absence for medical and/or mental health reasons that exceeds 72 hours will require clearance from a licensed provider before returning to classes.

C. Make-up Policy: Each student is expected to attend each exam at the date and time specified. If a student cannot attend an exam due to valid University excuse, he/she must speak directly with the course coordinator, as soon as possible. The course coordinator must be notified **prior** to an examination if a student misses an exam. The ULM COP Excused Absence Policy must be followed. Please refer to the official document for details. In case of emergency, the course coordinator must be notified within 48 hours of the emergency. Failure to do so will result in a zero (0) grade for that exam. Make-up exams will be prepared at the same or higher level than the original exam. The format of the make-up exam may be written or oral. Failure to attend a scheduled make-up exam will result in a zero (0) grade for that exam. *Students missing an exam due to a University approved excuse will take the make-up exam during the week of finals, or as determined by the course coordinator.*

<http://www.ulm.edu/pharmacy/currents.html>Links to an external site.
[Links to an external site.](#)

D. Academic Integrity: Faculty and students must observe the ULM published policy on Academic Dishonesty (see Page 4 of the ULM *Student Policy Manual* - <http://www.ulm.edu/studentpolicy/>Links to an external site.). All professional students will adhere to the standards set forth in the College of Pharmacy's Code of Conduct (<http://www.ulm.edu/pharmacy/currents.html>Links to an external site.).

Students who violate academic integrity will be given a zero for the associated graded activities.

Unless expressly allowed by the instructor, the use of artificial intelligence (AI) tools and applications (including ChatGPT, DALL-E, and others) to produce content for course assignments and assessments is a violation of the ULM College of Pharmacy's Code of Conduct and is prohibited.

Censures (Penalties)

Academic dishonesty will result in a referral to the Academic Standards and Ethics Committee. If the student is found guilty of Ethical and Professional misconduct by the committee, they may receive an "F" in the course from the course coordinator in addition to any disciplinary action recommended by the Academic Standards and Ethics Committee. Academic dishonesty includes, but is not limited to, the use of information taken from others' work or ideas, the provision of help to others on non-collaborative evaluations (tests, quizzes, ec.), collaboration on take home exams, or the use of unapproved information or electronic devices to assist in obtaining answers.

E. Course Evaluation Policy: At a minimum, students are expected to complete the online course evaluation as well as any evaluation administered in class by the College of Pharmacy.

Changes to this class rely on student feedback. Therefore, individual feedback is encouraged throughout the course.

F. Student Services: Information concerning student services in the College of Pharmacy can be found in the College of Pharmacy Student Handbook. In particular, students should pay special attention to the University's technical standards and policies concerning students with special needs

(<http://www.ulm.edu/studentpolicy/studentpolicy.pdf>[Links to an external site.](#)). ULM student services, such as the Student Success Center (<http://ulm.edu/cass>[Links to an external site.](#)), Counseling Center (<http://ulm.edu/counselingcenter>[Links to an external site.](#)), and Student Health Services, is available at the following Student Services web site <http://ulm.edu/studentaffairs>[Links to an external site.](#). Students with special needs requiring accommodations MUST follow the process described at <http://rxweb.ulm.edu/pharmacy/student/specialneeds.pdf>[Links to an external site.](#) .

Mental Wellness on the ULM Campus

If you are having problems with emotional, social, and/or behavioral issues please call any of the mental health clinics on the ULM campus to make an appointment. All services are free to ULM students, staff, and faculty, and are strictly confidential.

- COP Office of Student and Professional Affairs: 342-3800
- ULM Counseling Center: 342-5220
- Marriage and Family Therapy Clinic: 342-5678
- Community Counseling Center: 342-1263
- ULM HELPS (Helping Educators and Learners Prevent Suicide) Project Office: 342-1335

The University of Louisiana at Monroe strives to serve students with special needs through compliance with Sections 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. These laws mandate that postsecondary institutions provide equal access to programs and services for students with disabilities without creating changes to the essential elements of the curriculum. While students with special needs are expected to meet our institution's academic standards, they are given the opportunity to fulfill learner outcomes in alternative ways. Examples of accommodations may include, but are not limited to, testing accommodations (oral testing, extended time for exams), interpreters, relocation of inaccessible classrooms, permission to audiotape lectures, note-taking assistance, and course substitutions.

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds, including federal loans and grants. Furthermore, Title IX prohibits sex discrimination to include sexual misconduct, sexual violence, sexual harassment and retaliation. If you encounter unlawful sexual harassment or gender-based discrimination, please contact Student Services at 318-342-5230 or to file a complaint, visit www.ulm.edu/titleix Links to an external site..

G. Emergency Procedures: Please review the emergency escape plan in the classrooms and hallways of the Bienville building. Move quickly and in an orderly manner to the appropriate stairwell and exit the building. The meeting place for this class will be the far end of the north parking lot between the Bienville building and Broadmoor Blvd. Under no circumstances is the elevator to be used for emergency evacuation. Any student needing assistance should notify the professor immediately. For emergencies, to contact University Police, call 1-911 from landlines and **342-5350 from cell phones. The course coordinators reserve the right to adjust the syllabus or schedule, in accordance with University and College policies and procedures.**

1. Federal Regulations require determination and verification of every students' physical location while enrolled in classes (where they are physically located while taking classes), regardless of the delivery method (on campus, online). At the beginning of every semester and whenever physical location changes, students must update or verify their current location through banner <https://ssb->

prod.ec.ulm.edu/PROD/bwgkogad.P_SelectAtypUpdateLinks to an external site.. Students should do this by the end of the first week of classes.

1. This course is a major requirement for the Doctor of Pharmacy degree. Completion of degree requirements leads to eligibility for professional licensure and/or certification in Louisiana upon graduation. Federal Regulations require universities to provide information to students about the alignment between Louisiana's requirements and those of other states. ULM has created a web page with discipline-specific information containing hyperlinks to Licensure Boards in the United States <https://www.ulm.edu/professional-licensure-disclosures/index.html>Links to an external site.. Program Directors and/or faculty will discuss this information with you during advising or other program meetings but is also available to answer questions and address any concerns you might have. It is also important to note that licensure or certification requirements are subject to change. Although ULM Program Directors annually review and update licensure information for every state, the faculty recommends that before enrolling in a program and throughout enrollment, students communicate with the applicable state board to confirm understanding and whether upon completion of ULM's program, they will meet requirements.

H. Course-Specific Policies

Students are responsible for all information on Canvas and instructor websites. Students are expected to check these sources regularly to access class materials, required readings, assignments, and other information necessary for this course. Course announcements may be made in class or by email; students are responsible for course announcements made by either of these methods.

Course Schedule - Tentative Course Schedule *subject to change at the discretion of the Course Coordinator *Class will meet in Bienville 201 TR at 8:00-9:20am*

Week	Day	Lesson
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1	T 8/27	Introduction to Research
	R 8/29	Background, Rationale, & Objectives
2	T 9/3	Randomized Controlled Trials
	R 9/5	Validity & Bias
3	T 9/10	Outcome Measures
	R 9/12	Inclusion & Exclusion
4	T 9/17	Describing Data
	R 9/19	Comparing Data 1
5	T 9/24	Comparing Data 2
	R 9/26	Visualizing Data <i>Midterm Practice Article Announced</i>

6	T 10/1	Calculations Practice
	R 10/3	Review/Midterm Exam Practice <i>Midterm Article Announced</i>
7	T 10/8	***Midterm Exam (B202)*** <i>Midterm Grade Cutoff</i>
	R 10/10	Clinical Significance
8	T 10/15	Choosing Statistical Tests
	R 10/17	<i>*Fall Break*</i>
9	T 10/22	Alternative Methods & Comparisons
	R 10/24	Power & Beta 1 <i>Midterm Grades Due 10/24</i>
10	T 10/29	Power & Beta 2 <i>Last day to drop with a "W"</i>
	R 10/31	Observational Studies 1

- 11 T **Observational Studies 2**
 11/5
- R **Journal Clubs**
 11/7 *Guest Presenter*
- 12 T **Discussion & Critique 1**
 11/12
- R **Discussion & Critique 2**
 11/14
- 13 T **Systematic Reviews, Meta-Analysis, & Clinical Guidelines**
 11/19
- R **Med Lit Round-Up**
 11/21
- *M* **Journal Club!**
 11/25 *ILS - Room Assignments TBA*
- 14 T **Final Exam Q&A**
 11/26 *Team Final article announced*
- R **Thanksgiving Day**
 11/28
- 15 T **Team Final Exam**
 12/3 *Individual Final article announced*

